

# PATENT SPECIFICATION

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## DRAWINGS ATTACHED

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## (54) A COVERED SLIDING CLASP FASTENER

- (71) We, LYSTA A/S, a Danish Company, of 2500 Valby-Kopenhagen, 14 Hoffdingsvej, Denmark, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed to be particularly described in and by the following statement:—
- The invention relates to a covered sliding clasp fastener having the stringer tapes folded back along one edge and the rows of interlocking elements attached to the back-folded stringer tape margins.
- In the known sliding clasp fastener of this type (cf German Gebrauchsmuster 1927429), the stringer tapes are mostly made from textiles and the rows of interlocking elements are attached to them by sewing (using step or chain stitching). The rows of interlocking elements are as it were laid on the back-folded stringer tape margins for sewing. The rows of interlocking elements themselves are made from plastics monofilaments, shaped into helical coil or alternatively meander formations. The known form is not without its disadvantages. Transverse pulls on the closed sliding clasp fasteners, for example after sewing into a garment, cause the folded edges to gape open so that the interlocking elements in the rows are no longer adequately covered. This is a nuisance and cannot be avoided even when additional shoulders for the stringer tapes are provided on the interlocking elements.
- The object of the invention is to develop a sliding clasp fastener of the type in question providing improved resistance to the folded edges gaping open when the closed fastener is pulled transversely.
- According to the present invention a covered sliding clasp fastener comprises stringer tapes folded back along one edge with a row of interlocking elements attached to each of the back-folded stringer tape margins, while each row of interlocking elements are sideways U-shaped in a projection taken longitudinally to the sliding clasp fastener on a plane at right angles to the plane of the fastener, one arm of the U of each element being longer than the other and carrying an interlocking head in a longitudinal plane substantially perpendicular to the plane of the fastener, and the shorter arms, which provide a support for the folded edge of the stringer tape in the U-gap between the two arms, are connected in pairs thus forming, when viewed in a direction perpendicular to the plane of the fastener, a series of U-shaped base sections providing the supports for the folded edges, with sewing stitches passing between the arms of the U-shaped base sections into the stringer tapes.
- The constructional technique for sliding clasp fasteners in accordance with the invention, as just described on a phenomenological basis, can be embodied in interlocking elements of a variety of forms. The form in which the interlocking elements are made in rows from plastics monofilaments includes a preferred embodiment of the invention in which the rows of interlocking elements are in (basically) meander formation and comprise broadened interlocking heads, the U-shaped base sections being displaced into gaps between adjacent interlocking heads.
- However, the invention can also be embodied in rows of interlocking elements produced by extrusion. In this case, the interlocking elements have club shaped interlocking heads and foot sections to which foot sections the U-shaped base sections are attached, the U-shaped base sections being displaced into the gaps between adjacent interlocking heads. The U bends again form the supports in the extruded embodiment.
- The sewing threads embrace the arms or club portions of the interlocking elements. Either chain or step stitching can be used.
- The invention will now be further described in greater detail by way of example, with reference to the accompanying drawings in which:—

Figure 1 is a cross-section through a first embodiment of sliding clasp fastener of the invention, on an enlarged scale;

5 Figure 2 is a schematic representation of the fastener of Figure 1;

Figure 3 is a view in the direction of the arrow A of Figure 1 with the stringer tapes partly removed;

10 Figure 4 is a schematic representation of Figure 3;

Figure 5 is a similar view to Figure 1 of a second embodiment of the sliding clasp fastener of the invention; and

15 Figure 6 is a plan view of the fastener of Figure 5 with the stringer tapes partly removed.

Both embodiments of the sliding clasp fastener shown in the drawings have textile stringer tapes 2, folded back along one edge 1, while rows 4 of interlocking elements are made from synthetic thermoplastic materials, and are attached to the back-folded stringer tape margins which are identified at 3. Also in both embodiments, the rows 4 of interlocking elements are U-shaped in a projection taken longitudinally to the sliding clasp fastener on planes at right angles to a plane 12 of the fastener. One arm 5 of the U in the rows 4 of interlocking elements of this shape is longer than the other arm 6. The longer arm 5 carries an interlocking head 7. The corresponding stringer tape margin 3 fits in a U-gap 8 between the two arms 5 and 6, while the shorter arm 6 provides a support 9 for the folded edge 1 and the stringer tape margin 3 is inserted far enough to meet the root of the U-gap identified at 10. The schematic Figure 2 is provided to clarify this phenomenological characteristic of the constructional teaching embodied in sliding clasp fasteners of the invention. It is numbered in conformity with the above description and demonstrates the meaning of the phrase "U-shaped in a projection taken longitudinally to the sliding clasp fastener on a plane at right angles to the plane of the fastener."

The embodiment of Figures 1 to 4 shows the rows 4 of interlocking elements made from plastics monofilaments while the embodiment of Figures 5 and 6 shows the rows 4 made by extrusion in continuous strands.

Thus, as shown in Figures 1 to 4 the required features of the rows 4 are produced by forming the plastics monofilament to the required shape. It will be seen that the rows 4 of interlocking elements are in meander formation with the elements identified at 11 and consisting of the broadened interlocking heads 7 arranged in a longitudinal plane substantially perpendicular to the plane 12 of the fastener and formed by flattening the plastics monofilament with arms 13 and 14 attached to the heads 7. Pairs of arms 6 extend into U-shaped base sections 15 which are displaced into the gaps between the adjacent interlocking heads

7. The U-shaped base sections 15 form the specified supports 9. This constructional technique is clarified by the schematic Figure 4, in which the U-shaped base sections 15 are particularly emphasised.

Again, with the embodiment shown in Figures 5 and 6 the part numbers 1 to 10 are as previously described. The interlocking elements 11 are club shaped when viewed in a direction perpendicular to the fastener plane and comprise a shaped interlocking head 7 and a foot section 16, to which the U-shaped base sections 15 are attached and as before displaced into the gaps between the adjacent interlocking heads 7. Once again the bends in the U-shaped base sections 15, which have a straight edge 17, form the support 9 for the folded edges 1. At the same time, this construction maintains adequate flexibility even in sliding clasp fasteners having extruded rows 4 of interlocking elements.

In both embodiments the rows of interlocking elements are attached to the stringer tapes 2 or the margins 3 thereof by sewing. It will be seen that the sewing threads 18 embrace the arms 13 and 14 (first embodiment) or the club portion of the interlocking elements (second embodiment) and the stitches pass between the arms of the U-shaped base sections 15. Grooves 19 or the like can be provided on the interlocking elements to hold the threads 18 in position.

#### WHAT WE CLAIM IS:—

1. A covered sliding clasp fastener comprises stringer tapes folded back along one edge with a row of interlocking elements attached to each of the back-folded stringer tape margins, while each row of interlocking elements are sideways U-shaped in a projection taken longitudinally to the sliding clasp fastener on a plane at right angles to the plane of the fastener, one arm of the U of each element being longer than the other and carrying an interlocking head in a longitudinal plane substantially perpendicular to the plane of the fastener, and the shorter arms, which provide a support for the folded edge of the stringer tape in the U-gap between the two arms, are connected in pairs thus forming, when viewed in a direction perpendicular to the plane of the fastener, a series of U-shaped base sections providing the supports for the folded edges, with sewing stitches passing between the arms of the U-shaped base sections into the stringer tapes.

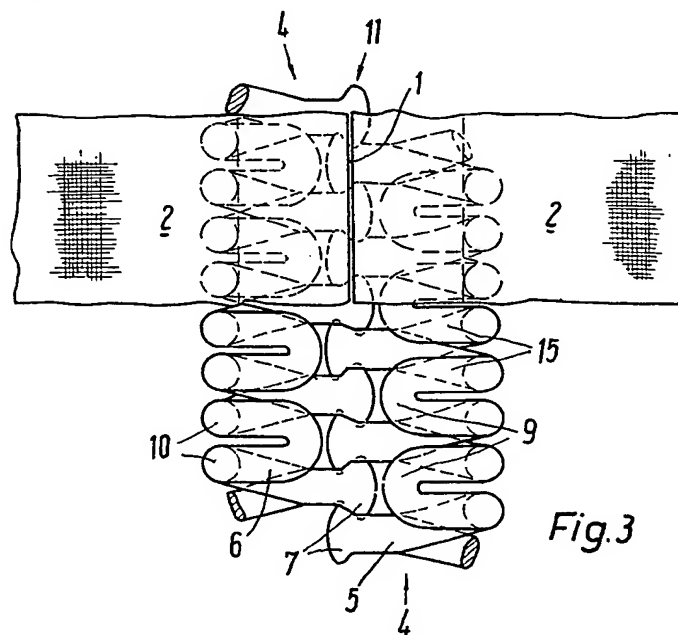
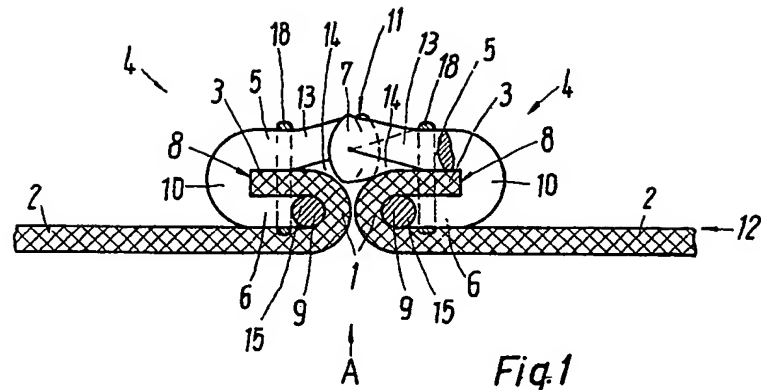
2. A covered sliding clasp fastener as claimed in Claim 1, wherein the rows of interlocking elements are made from plastics monofilaments and are in meander formation, and comprise broadened interlocking heads, the U-shaped base sections being displaced into gaps between adjacent interlocking heads.

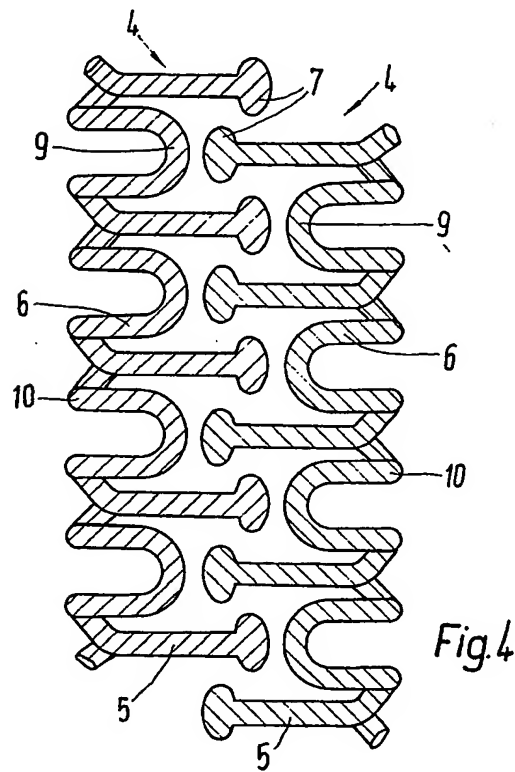
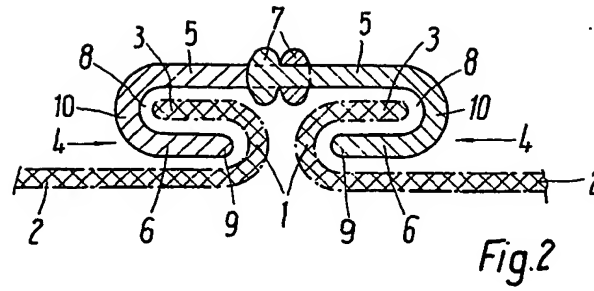
3. A covered sliding clasp fastener as claimed in Claim 1, wherein the rows of interlocking elements are produced by extrusion of plastics material and have club-shaped inter-

- locking heads and foot sections, to which foot sections and U-shaped base sections are attached, the U-shaped base sections being displaced into gaps between adjacent interlocking heads.
- 5 4. A covered sliding clasp fastener substantially as hereinbefore described with reference to Figures 1 to 4 of the accompanying drawings.
5. A covered sliding clasp fastener substantially as hereinbefore described with reference to Figures 5 and 6 of the accompanying drawings. 10

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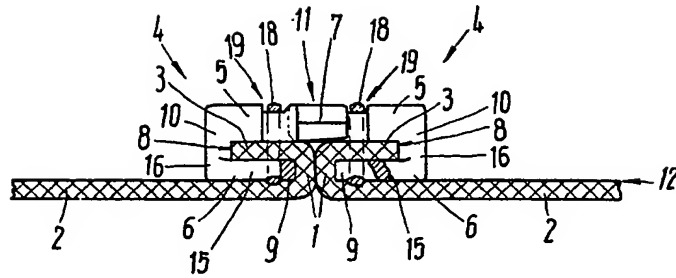


Fig. 5

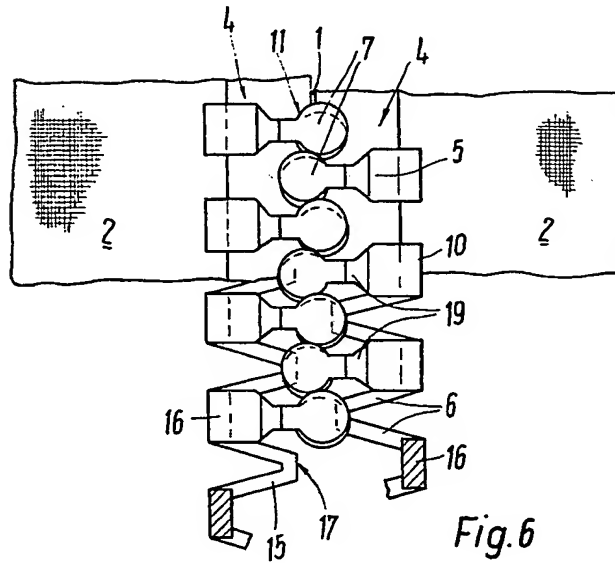


Fig. 6